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AUTHOR Weinberg, Ira
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ABSTRACT Specific cost areas are examined for 100 private, four-year colleges having a full-time equivalent (FTE) enrollment of fewer than 3,000 students. A questionnaire was distributed to each of the institutions to gather the data presented here. The purpose of the study was to compare costs and cost factors of small colleges. Five categories of expense are considered: (1) educational and general expenses; (2) auxiliary expenses; (3) student activities; (4) student aid; and (5) debt service. Costs are expressed in terms of expenditures per FTE student. Instructional expenses are evaluated by examining five key departments. In addition, the cost effectiveness of the admissions and development offices is examined. (Author/MSE)

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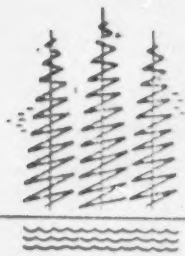

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COST INDICES AT PRIVATE LIBERAL ARTS COLLEGES

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Dr. Ira Weinberg, Director
Center for Business and Economics
Continuing Education
Lakeland College
Sheboygan, Wisconsin 53081

COST INDICES AT PRIVATE LIBERAL ARTS COLLEGES

The author proposes to examine specific cost areas at 100 private, four year colleges having a full-time equivalent (FTE) enrollment of fewer than 3,000 students. He has submitted a questionnaire to each one of these institutions, and will exhibit all cost data in terms of FTE's so that it will be comparable among these colleges. It is the intention of the author to develop comparative cost indices for this specific category of colleges.

Why do we need comparative cost indices?

The President, his immediate administrators, and members of the Board of Trustees, need quality and meaningful information upon which they can make decisions. The author believes that especially in the case of cost figures, reference points are lacking, and hence, these figures are less meaningful for those people needing them most. Administrators should have available to them comparative cost indices with which the relative health of their organization can be compared to similar kinds of institutions.

How could an index cost range be employed?

An example would be meaningful here. Each year many thousands of students take standardized examinations. The test scores in themselves are meaningless unless they are presented in terms of student norms. In this way

educators can evaluate the relative accomplishments of the student and measure them in objective terms.

What kinds of costs will be examined as part of this study?

The author proposes to examine the following categories of expense and state them in terms of full-time equivalent students (FTE's). These categories are: (1) Educational and General Expenses; (2) Auxiliary Expenses; (3) Student Aid; and (4) Debt Service. Instructional expenses will be evaluated by examining five key departments. In addition, the author will try to determine the relative cost effectiveness of two campus offices--admissions and development.

Aim of the study

Costing should be more than an intellectual exercise. The author hopes that this study will provoke administrators to seek answers to the following questions:

1. Are our cost figures outside the range for other colleges of our size and type?
2. What particular factor(s) or element(s) of the cost process appear to be outside the range?
3. What can we do to relieve the situation?

COST INDICES OF PRIVATE LIBERAL ARTS COLLEGES

Ira Weinberg
Director
Continuing Education and the
Center for Business and Economics
Lakeland College
Sheboygan, Wisconsin
March 7, 1977

Cost Indices at Private Liberal Arts Colleges

The author proposes to examine specific cost areas at 100 private four-year liberal arts colleges having a ful-time equivalent (FTE) enrollment of fewer than 3,000 students. He has submitted a questionnaire to each one of these institutions, and will exhibit cost data in terms of FTE's so that it will be comparable among these colleges. It is the intention of the author to develop comparative cost indices for this specific category of colleges.

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What kinds of costs will be examined as part of this study? The author proposes to examine the following categories of expense and state them in terms of full-time equivalent students (FTE's). These categories are: (1) Educational and General Expenses; (2) Auxiliary Expenses; (3) Student Aid; and (4) Debt Services. Instructional expenses are evaluated by examining certain kev departments. In addition, the author will develop institutional ranges for such categories as staffing, (including faculty and administration), recruitment and attrition, and the development functions.

What is the specific aim of this study? The author hopes that this study will provoke administrators to seek answers to the following questions:

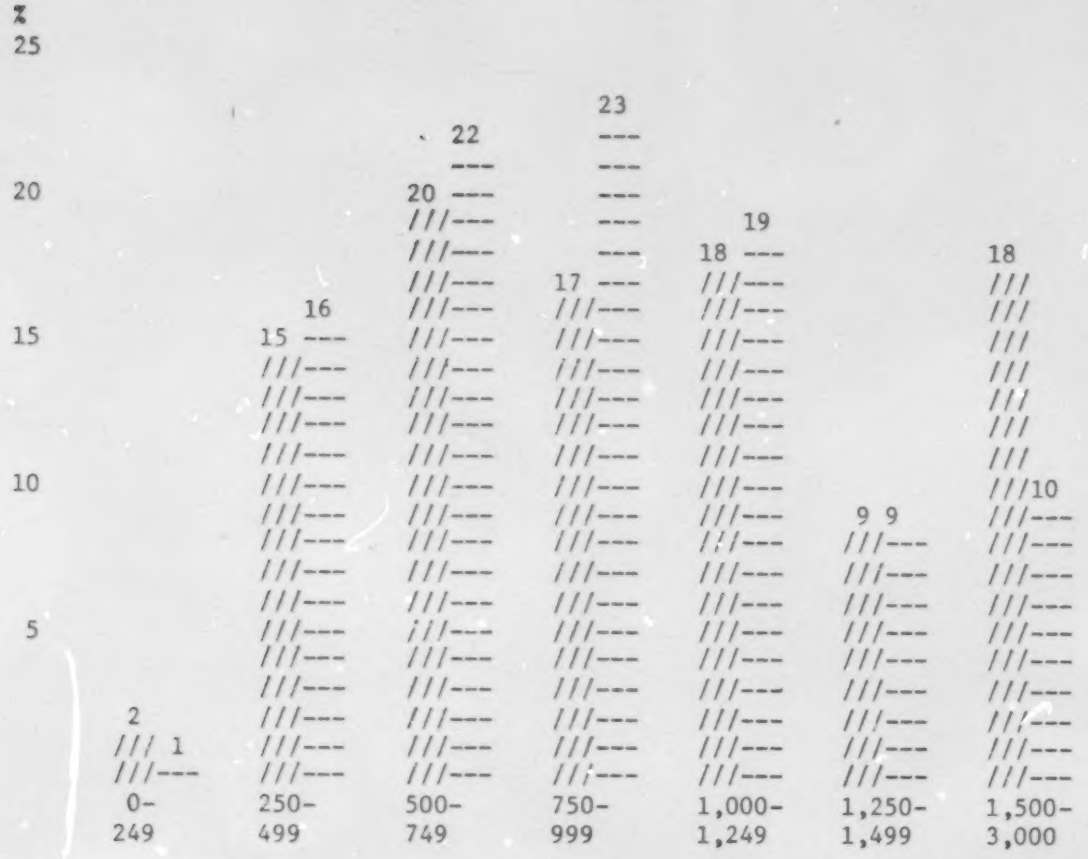
1. Are our cost figures outside the range for other colleges?
2. Where is our college located on the cost curve? By observing the width of each quartile range, an administrator can develop a reasonable picture of where his college fits in relation to the other colleges in this study.
3. What particular factor(s) or element(s) of the cost process appear to be outside the range?
4. What can we do to relieve the situation.

The author has mailed the questionnaire to all private, four-year, Liberal Arts colleges having fewer than 3,000 FTE's. Of those colleges surveyed, 100 responded to the questionnaire.

The first question I thought needed to be answered was, do the institutions responding to the questionnaire fairly represent the total population for these kinds of colleges? Please refer to Figure 1 (on the following page) which compares the percent of institutions falling within each size category as they exist in the total population and as they exist in the sample. The largest institutions, those having more than 1,500 FTE's do not appear to be adequately represented in the sample. However, those colleges having between 250-1,500 FTE's seem to be represented in the sample in the same proportions as they exist in the total universe.

Figure 1

Size of Institution by Number of
Full-Time Equivalent Students (FTE's)
and Percent of Colleges in Each Category



/// % of institutions per category as existing in the total population.

--- % of institutions per category who responded to the questionnaire.

Table 1, below, shows the mean enrollment and standard deviation for FTE's by size of college.

Table

Mean FTE by Size of Institution

Enrollment Range	Mean	Standard Deviation
0- 249	190.00	-
250- 499	423.86	81.79
500- 749	616.37	83.60
750- 999	848.55	68.67
1,000-1,249	1,115.41	69.88
1,250-1,499	1,378.00	74.00
1,500-3,000	1,974.22	426.27

I have included this information sc that an administrator can determine where his institution fits within the range of scores in Table 1.

A question frequently asked of the admissions director is, what is your estimate of the size of the next entering class? If an answer is to be forthcoming, certain kinds of information must be developed. Therefore, I compared requests for information about the college to the number of applications for admission. In turn, I compared the number of applications received to the number of acceptances, and the number of acceptances to the number of first time matriculants to develop a conversion rate. With this information in hand, an administrator can judge, with some certainty, how efficient his recruitment and admission procedure really is. For example, if a college has a low rate of applications to requests for admission information, this would tend to indicate that the admissions counselors are doing a less than satisfactory job in recruitment. A low ratio of acceptances to applications may indicate a highly selective college, and/or a rigorous admissions procedure. Of course, it could signal the need for a more vigorous public relations effort on the part of the college. The ratio of acceptances to matriculants is, again, a reflection of the quality of the recruiting effort. A low ratio, here, indicates that admissions fell down on the job just before their task was completed. To fail, here, is very expensive, because of the time and the effort that has already been expended on each applicant.

Let us examine first, then, the relationship between the number of applications for admission and the number of requests for admissions information. In this case, we find that the mean rate is 26.43 percent and the median rate is 18 percent. Figure 2 (on the following page) shows that the data are skewed, sharply, to the left. The lowest quartile range is 8-11%, the second quartile range is 12-18%, the third quartile range is 19-30%, and the highest quartile range is 32-93%. Quite obviously, some admissions people do an outstanding job and convert blind requests for information into applications for admission, but most, however, do not.

Administrators often want to know the relationship between the number of requests for admission information and the number of institutions, the mean is 14.11 percent and the median is 8 percent. Again the data are skewed sharply to the left. (See Figure 3 on page 5)

Obviously, some admissions peop'e do a ppor job and "convert" very few applications for admission into first time matriculants. At the same time, other admission staffs "convert" more than 7 of every 10 applicants into matriculants. Of course, this success rate may indicate that the college is a prestige institution, and one in which students are very desirous of matriculating. Is this, however, the case? What is the relationship between the number of applications and the number of acceptances?

In this study, most of the colleges do not fall in the category of highly selective institutions. The median acceptance rate is 89 percent. Fully half of the colleges accept 90 percent or more of all applicants, and some colleges accept 100% of their applicants. Figure 4, on page 6, shows the data as reported in this study.

One wonders whether this high rate of acceptances to applications--three fourths of the colleges reporting had an acceptance rate of 79 percent or higher--is the result of the overall decline in college attendance or merely a normal state of affairs.

Figure #2

Ratio of Applications for Admission to Requests for Information

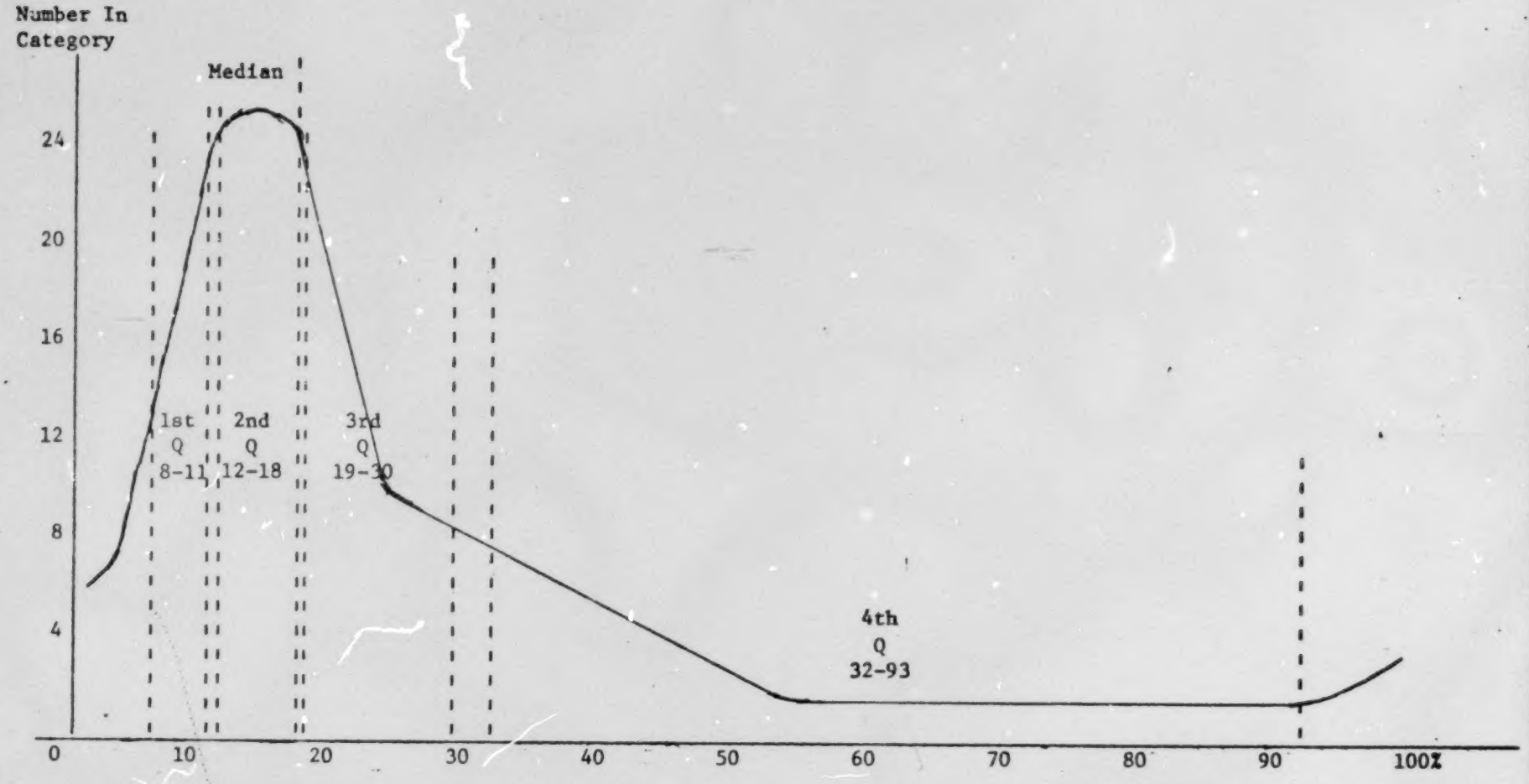


Figure #3

Ratio of Requests for Admission Information to First Time Matriculants

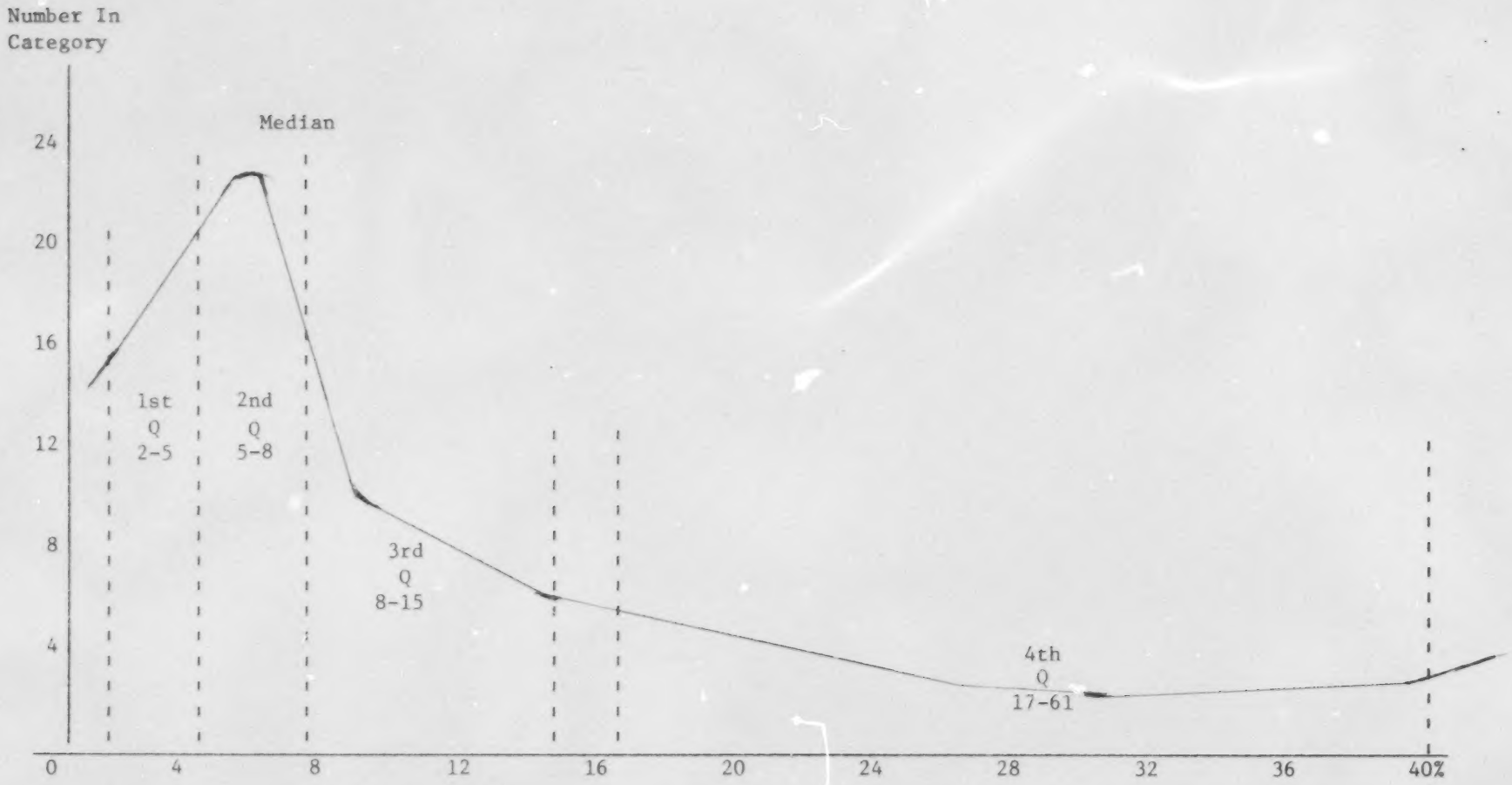
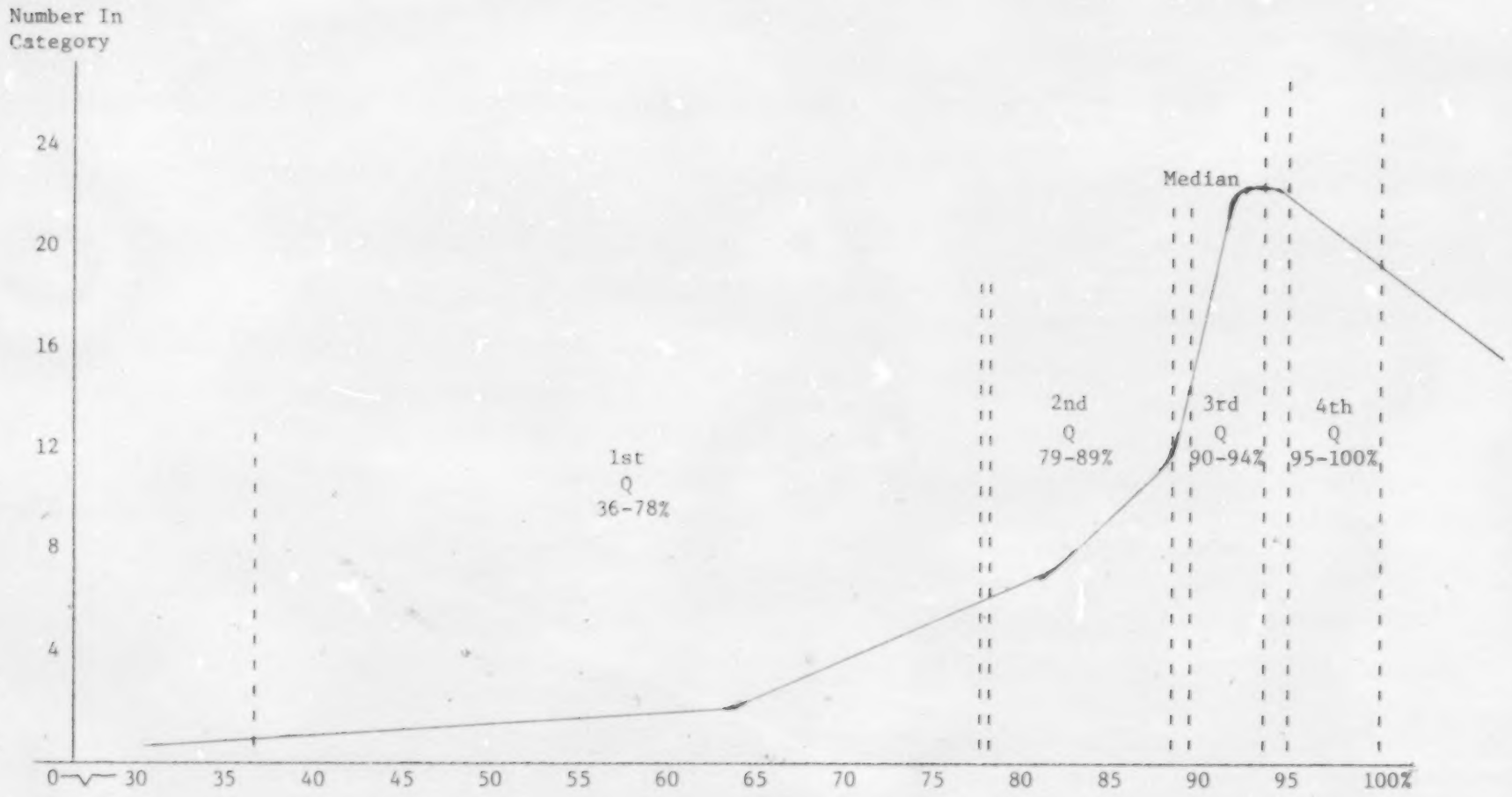


Figure #4

Percent of Acceptances to Applications



Some indication of the desirability of these colleges can be learned by comparing the number of acceptances to the number of first time matriculants. The mean for all colleges is 53.76 percent and the median is 57 percent. (For the quartile ranges, see Figure 5 on page 8.) An examination of the data shows the great range among colleges. Some must be very desirable, because up to 99 percent of the students who are accepted actually matriculate. The experience of some colleges in the lowest quartile is less happy. Some colleges matriculate as few as 20 percent of their acceptances.

Institutions of higher education are very labor intensive. If a college is to reduce costs, where can or should labor savings be made--in the administration or the faculty? Figures 6, 7, and 8 give some evidence of just where colleges may be top-heavy in labor and, in the case of faculty, whether or not the tenure situation would prevent the administration from taking effective action.

One way of comparing the administrative efficiency of colleges is to compare the number of administrators per 100 FTE's. The mean for this category was 3.08 administrators per 100 FTE's, while the median was 2.79. However, the range was quite broad, from a low of .52 to a high of 11.25.

The figures lead one to suspect that some colleges are not terribly efficient, and require substantially more administrators for operational purposes than other colleges.

Another area of cost to consider is the percent of tenured faculty to full-time faculty. This figure is important, because as the percentage figure increases, the ability of the college to adapt to new demands on the part of its constituency decreases. In essence, the college loses its flexibility, and may not be able to meet the changing needs of its students. Both the median at 53% and the mean at 52.33% with a standard deviation of 7.34 are very close. However, the range of scores varied from a low of 6% in some colleges to a high of 85% in other colleges. Figure 7, on page 10, shows the quartile ranges.

The safe range for colleges appears to be from 40% to 60%. Those colleges having more than 2/3 of their full-time faculty tenured may have severely limited their ability to react to future contingencies.

Colleges point with pride to their student-faculty ratios. A college having fewer students per faculty member is thought to provide its students with a more personalized, and higher quality education. In this study, the mean was 13.8:1 with a standard deviation of 32 0. Again, however, as with so much else in higher education, the range of scores varied greatly among the colleges. Figure 8, on page 11, shows the median and the quartile ranges for the student-faculty ratio. Of course, quality is expensive. A low student-faculty ratio is a luxury that many colleges may not be able to afford. This ratio may account, to some extent, for the high tuition costs of private colleges. Of course, this same low ratio is just what attracts so many students to the private sector. Administrators have to consider what effects a higher student faculty ratio would have on their admission and retention rates.

Attrition is a topic of concern to many in the higher education community. There is a continual dialogue among faculty and administrators over the issue of attrition. The question is asked and asked again,--Are our standards too high, or should they be higher? Faculty are primarily concerned with academic excellence, and strive for the highest standards attainable. Some administrators,

Figure #5

First Time Matriculants as a Percent of the Number of Acceptances

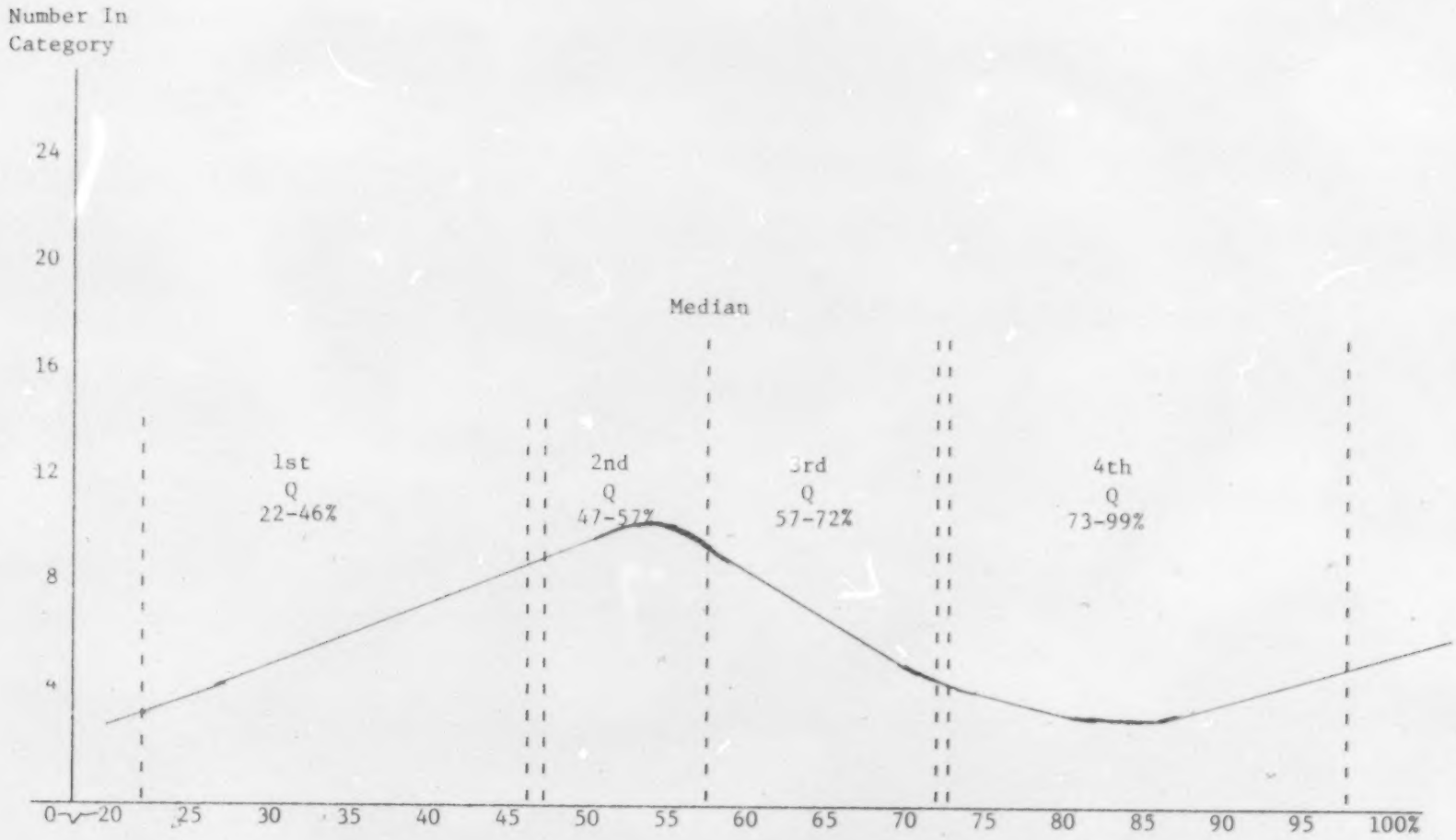


Figure #6

Number of Administrators per 100 Full-Time Equivalent Students by Quartiles

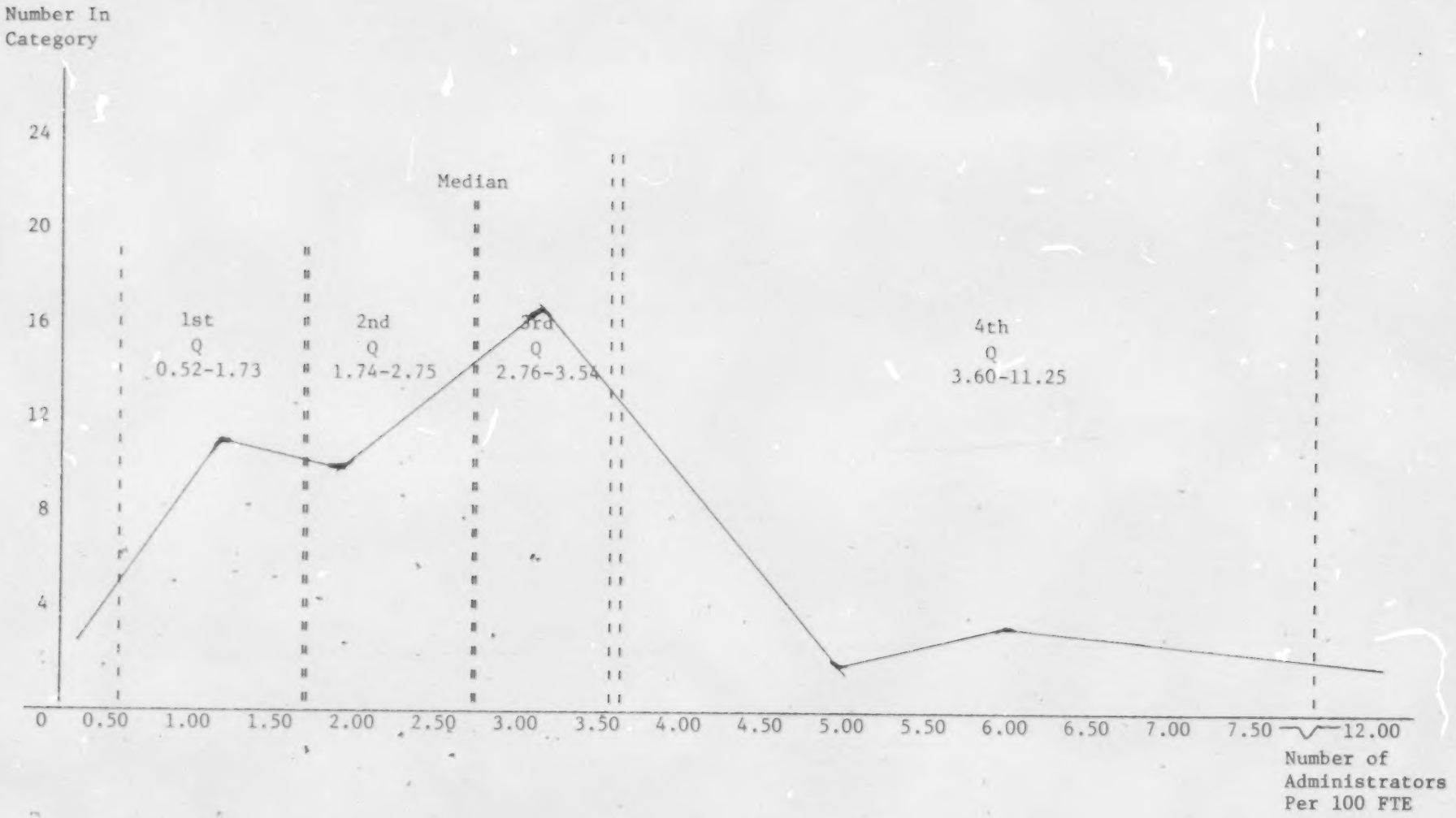


Figure #7

Percent of Tenured Faculty to Full-Time Faculty

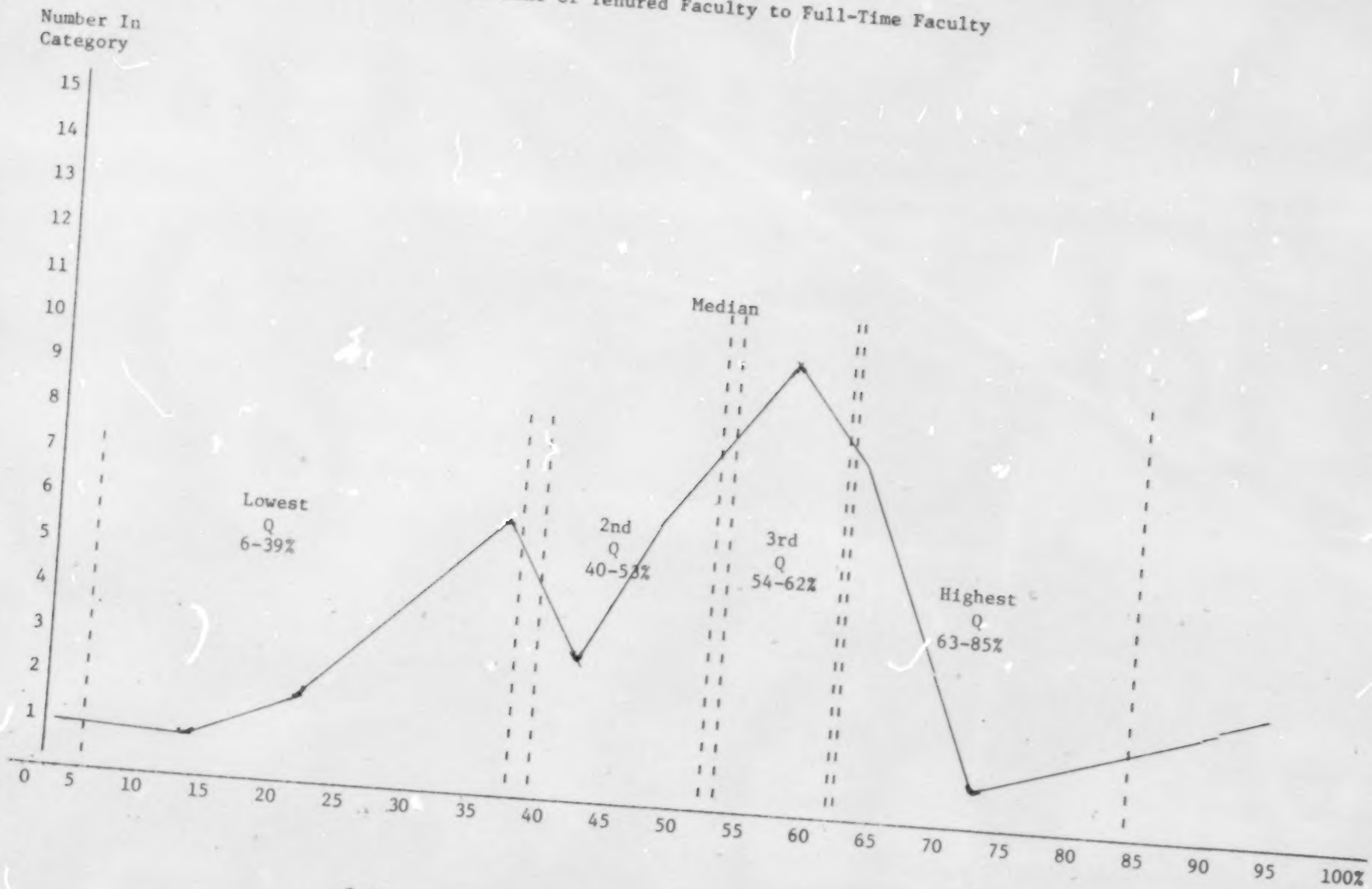
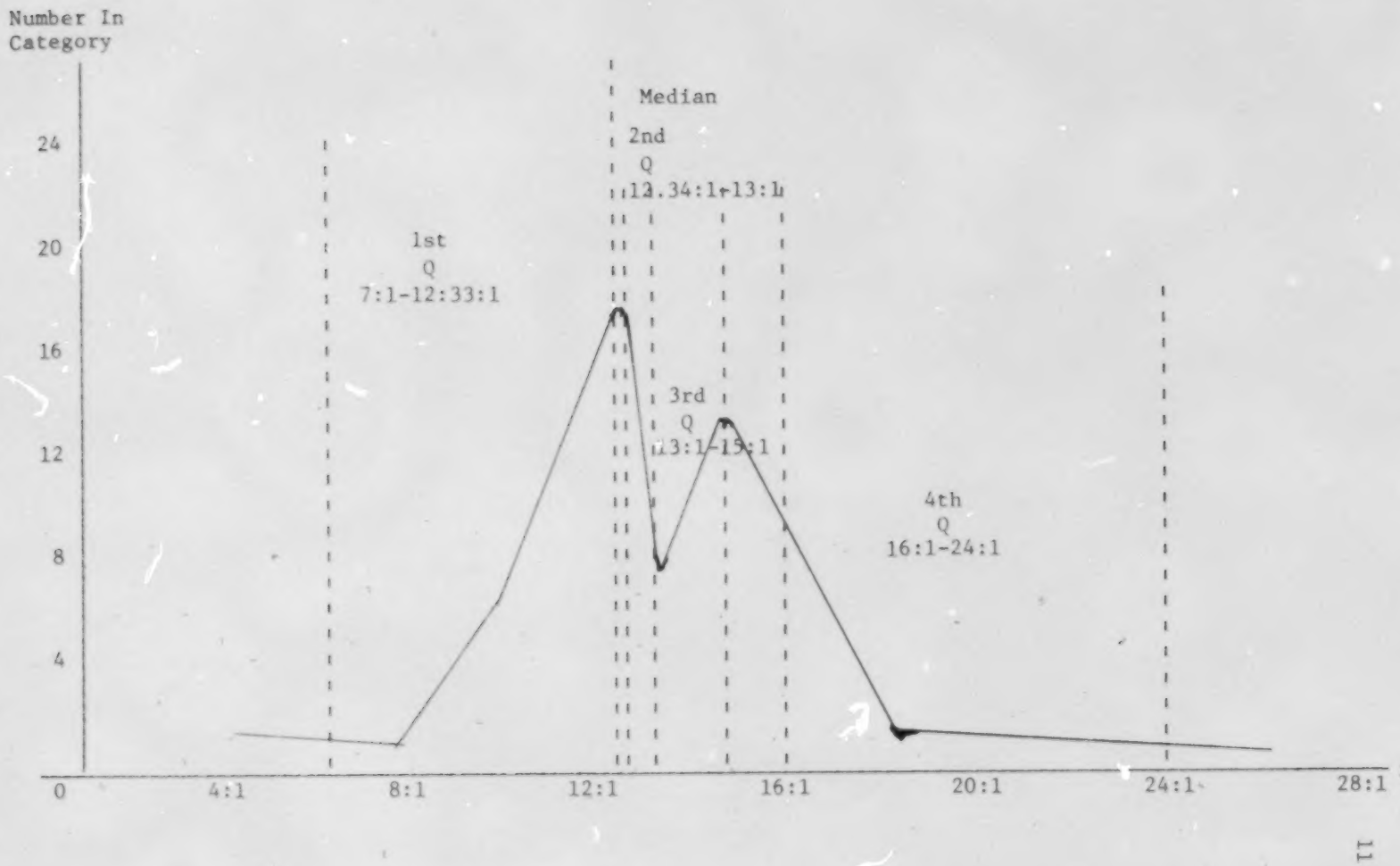


Figure #8

Student Faculty Ratio



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recognizing the effect that high attrition has on the balance sheet and the difficulties faced in recruitment, may be more included to favor a liberalization of academic standards.

Just what are the ranges for attrition? Table 2 seems to indicate that some colleges may be very selective, and lose nearly one half of both the freshman and the sophomore class during the first two years. Other institutions, however, particularly those in the lowest quartile range lose fewer than 5 percent of their students through attrition. I did not request the information, and have no way of knowing whether attrition is due primarily to academic, economic, or social factors. Of course, the opposite conclusion can be drawn. Those colleges with a low attrition rate may have been very selective during the recruitment process, and hence, expect to lose few students because of academic, financial, or other reasons.

Table 2

Attrition Rates for Freshmen, Sophomores, and Lower Division Students
Quartile Ranges

Category	Mean	Median	Lowest Quartile	2nd Quartile	3rd Quartile	Highest Quartile
Freshmen	12.55%	10%	1- 3%	4-10%	11-17%	18-53%
Sophomores	10.82%	8%	1- 5%	6- 8%	9-15%	16-48%
Lower Division	29.15%	28%	1-20%	21-28%	29-38%	39-64%

Please refer to Table 3

Table 3

Category	Mean	Median	Lowest Quartile	2nd Quartile	3rd Quartile	Highest Quartile
Percent of Alumni Contributing to Annual Giving	20.63%	16.5%	2-10%	11-16%	17-29%	30-51%
$ Raised by Annual Giving per FTE	$228.48	$120	$3-31	$33-118	$122-289	$295-1805
Cost of Development per FTE	$170.49	$159	$20-106	$108-159	$160-205	$207-527

We can see that for each category, there is a broad range of scores. For example, in alumni giving, one college reported a rate of 2% while another college had a success rate of 51%. I am concerned when I compare Dollars Raised by Annual Giving per FTE to the Cost of Public Relations, Development, and Capital Fund Raising per FTE. It appears that the median figure for income is $120 per FTE, and the cost is $159 per FTE. This is not a happy state of affairs. Quite obviously, some colleges are ineffective and inefficient in their fund-raising activities. In fact, their fund raising expenses appear to be greater per FTE than the income these activities produce per FTE.

I next wanted to know which academic departments consumed the greatest percentage of the budget, and which of these same departments genereated the greatest numbers of credit hours of enrollment. Table 4 shows the percent of the total instructional budget consumed by each reporting department and the percent of the total credit hours generated by each reporting department. These figures are for reporting departments only, and do not represent total instructional budget or credit hours of enrollment.

Table 4

Percent of Total Instructional Budget Consumed and Percent of Total Credit Hours of Enrollment Generated by Each Reporting Department.

Department	Percent of Total Instructional Budget $		Percent of Total Credit Hours of Enrollment Generated By Department	
	Mean	S.D.	Mean	S.D.
English	33%	7%	30%	7%
Mathematics	18%	7%	17%	6%
Psychology	21%	8%	27%	10%
French	6%	2%	6%	2%
History	22%	6%	20%	7%

Of all these reporting departments, it is interesting to note that only psychology appears to generate more income than it consumes. Since so many students take English at some time in their college career, I wonder why the same is not true for this department as well? Mathematics, while having few majors, is generally thought of as a service department, and generated almost as much revenue as it consumed.

I wanted to evaluate instructional costs from another aspect, and consequently, I compared these same departments from the point of view of instruction cost per full-time equivalent. Table 5 on the next page, shows the mean, median, and quartile ranges for these reporting departments. It appears that most colleges expend more of their funds on their English departments than they do in other instructional areas. However, between the highest and lowest the spread of expenditures in dollars spent per FTE in English is far greater than in the other departments, and yet the floor, the minimum amount expended in English is at least 50% higher than in other departments. I have no idea why English should appear to be so much more costly than these other departments.

Table 5

Cost of Instruction Per Full-Time Equivalent

Department	Mean	Std. Dev.	Median	Lowest Quartile	2nd Quartile	3rd Quartile	Highest Quartile
English	$100.36	$41.86	$86.00	$37-71	$73-86	$87-126	$129-256
Mathematics	$ 56.33	$29.17	$52.00	$12-35	$36-52	$53-65	$ 69.183
Psychology	$ 66.00	$32.00	$62.00	$ 9-42	$43-62	$63-81	$ 84-151
History	$ 66.67	$26.33	$65.00	$23-49	$52-65	$66-80	$ 81-133

I wanted to examine these departments from another point of view. Consequently, I compared the credit hours of enrollment per FTE by departments. The comparative figures are presented in Table 6.

Table 6

Credit Hours of Enrollment Per FTE by Department

Department	Mean	Std. Dev.	Median	Lowest Quartile	2nd Quartile	3rd Quartile	Highest Quartile
English	2.82	1.62	2.66	0.60-1.80	1.82-2.66	2.67-3.31	3.34-10.73
Mathematics	1.58	1.08	1.30	0.34-0.93	0.95-1.28	1.32-1.96	1.97-6.92
Psychology	2.39	1.49	2.08	0.54-1.35	1.36-2.08	2.09-2.72	2.73-8.61
History	2.01	1.35	1.68	0.42-1.13	1.18-1.56	1.68-2.33	2.34-8.24

It is no surprise that the English departments generate more credit hours of enrollment (CHE) per FTE than the other departments. After all, nearly every college has some English requirement for graduation. However, when we compare the figures presented in Table 6 to those in Tables 4 and 5, it becomes painfully obvious that the English departments are not cost-effective, and yet they should be. Of those departments surveyed, only the psychology departments generated more revenue than they consumed. The most striking feature concerning these figures, is the vast difference between the lowest and the highest scores within each department. It is obvious that different colleges attach substantially different degrees of importance to these various departments. Differences in degree requirements may account for the large differences in credit hours of enrollment generated by departments and among different colleges.

The last area I considered was the funds expended per FTE by specific activity. Essentially, these activities fall into five general areas: (1) Educational and General Expenses; (2) Student Aid; (3) Student Activities; (4) Auxiliary Enterprises; and (5) Debt Service. The cost information is presented in Table 7 on page 16. Even a superficial glance at the data will show the tremendous range within each category of expense from the lowest to the highest. Examine the values for instructional expenses, if you will. Although the mean and median are close, $1,187 and $1,163 per FTE, the total range is quite broad, with a low expenditure of $101 per FTE to a high of $2,268 per FTE--a difference of more than 20-1.

A review of all of the data presented in this study shows major differences in expenditures per FTE among colleges. Some colleges are more efficient than others, and thus may have more funds available to spend on instruction per FTE. In any event, it is my hope that this data will enable interested administrators to know with more certainty how they compare with other colleges around the country. Of course, the real hope is that if it is determined that a college is not fairing well in relation to its neighbors, the president will ask his staff,--Why?--and --What can be done to alleviate the situation?

Table 7

$ Expended Per FTE By Activity

Category	Mean	Median	Lowest Quartile	2nd Quartile	3rd Quartile	Highest Quartile
I Educational & General						
A. Institutional	$ 992	$ 422	$ 91-277	$ 287-422	$ 435-1,614	$1,623-4,862
B. General Administrative	$ 222	$ 190	$ 88-140	$ 141-190	$ 192-257	$ 259-866
C. Instructional	$1,187	$1,163	$ 101-926	$ 936-1,165	$1,190-1,386	$1,392-2,268
D. Library	$ 139	$ 132	$ 38-107	$ 108-132	$ 133-167	$ 168-320
E. Student Affairs	$ 263	$ 237	$ 79-177	$ 186-236	$ 237-310	$ 312-995
F. Operations & Maintenance	$ 412	$ 341	$ 86-265	$ 266-339	$ 340-469	$ 470-1,012
G. Public Relations, Alumni Development, Capital Fund Raising	$ 78	$ 64	$ 4-41	$ 42-63	$ 65-103	$ 104-347
II Student Aid	$ 392	$ 362	$ 74-196	$ 199-359	$ 365-495	$ 499-1,400
III Student Activities	$ 50	$ 37	$ 2-27	$ 28-37	$ 40-56	$ 58-399
IV Auxiliary Expenses	$ 883	$ 882	$ 34-653	$ 653-882	$ 884-1,067	$1,071-2,724
V Debt Service	$ 212	$ 174	$ 6-94	$ 95-174	$ 179-270	$ 271-693

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